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Modification of CV-1 Transistorized Converter for use in conjunction with AC/DC Receivers

1. Use low power soldering iron and coolant on oscillator-emitter lead (connected to ground with wire) while soldering. The use of water saturated pipe cleaners, etc., for heat sink is quite satisfactory.

2. Remove nylon chassis from metal case. It isn't necessary to disconnect the minus battery lead while performing this modification. Now disconnect shield and cold end of T₂ secondary from ground bus wire. Place a .005 µf. ceramic capacitor ($\frac{1}{16} \times \frac{1}{8}$ ") in vacant area below tuning capacitor. At this time remove protruding $\frac{3}{8}$ " 4-40 screw and replace with a $\frac{1}{4}$ " 4-40 screw if it hinders mounting the capacitor. Now solder one end of the capacitor to the ground bus and the other end to the junction of cold ~~to~~ end T₂ secondary & the braided shield. Some adjustment of leads and a small piece of insulating tape may be required at this junction. Keep connections flush with bottom of chassis.

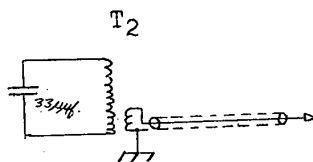
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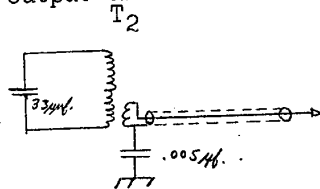
3. To check modification measure approximately 2.5 Ohms across T_2 secondary and infinite Ohms from T_2 secondary to chassis ground. Make this same check when unit is reassembled. ~~check~~

4. Unit is ready for normal operation. The above modification permits grounding the Converter ^{to earth} and direct connection of shield to chassis of receiver.

1. Original output circuit:



2. Modified output circuit:



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Servicing C.V.-1 Converter & RCA Receiver

1. This report concerns the failure within the two converters and receiver used in conjunction with the converter, that were returned to Rand D Lab for service.
2. The receiver (RCA MOD. 4X648-AC/DC 6 tube) was inoperative because of the following:
 - a. Loop antenna disconnected.
 - b. First I.F. Transformer secondary open.
 - c. R.F. stage Cathode bias resistor destroyed by heat.
 - d. IF stage " " " " " "

When the set was operated with the loop antenna removed the grid of the R.F. stage was floating. The A.V.C. & self bias return is through the loop. Thus with the excessive plate current the Cathode bias resistor overheated. The secondary of the first I.F. transformer was found open and upon inspection badly burned. When it ~~was~~ opened it removed all bias from the I.F. stage & its Cathode resistor was destroyed in the same manner as above.

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The destroyed parts were replaced and receiver was aligned and returned to service.

3. The counter marked, "wounded," was restored to operating condition after the following was performed:

- a. Secondary of T_2 was found burned and open - The transformer was replaced
- b. The oscillator transistor was bad and was replaced.

4. The unmarked converter was restored to service after replacing bad oscillator transistor.

5. When the units were restored to service they were operated for 64 hours continuously and operation remained very satisfactory. This leads one to believe that transistor failure is not due to the circuit itself but to externally caused transients and surges being applied to the oscillator, exceeding the transistor ratings. Such a condition could exist when the unit is being connected or disconnected while battery voltage is applied to the crystal in O.C. mode.

ADDENDUM

Operating notes & instructions.

CV1 Transistorized Converter.

DO'S & DON'TS

Do Remove receiver power plug when connecting CV1, ant, ground, etc.

Do Remove crystal before disassembly

don't connect ~~the~~ CV1 while crystal is in socket.